

REMARKS

Independent claims 129 and 138 have each been amended to incorporate the limitations of respective dependent claims 132 and 141 (reciting that the device is capable of producing electricity in the absence of fuel). Accordingly, these claims have been cancelled without prejudice or disclaimer. No new matter has been added.

Claims 116-120 and 123-131, 133-140, and 142-145 are now pending for examination.

Rejections under 35 U.S.C. §103(a) in view of Koch and Horita

Claims 52, 129, 132, 135, 136, 138, 141, 144, and 145 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Horita, *et al.*, UK Patent Application No. GB 2,278,010 ("Horita" or "Teruhisa").

At the outset, it is not seen where Horita discloses or suggests a device that is capable of producing electricity in the absence of fuel, as recited in claims 129 and 138, as amended. The Patent Office states that Horita teaches this on p. 13, paragraph 2. This paragraph from Horita is reproduced in its entirety below:

Thus, since the vanadium carbide itself reacts with carbon and oxygen, unlike the nickel electrode, the vanadium carbide is not denatured or is not changed in its form to be poisoned and deactivated when it comes in contact with carbon.

However, the Applicants do not see where this paragraph teaches or suggests a device that is capable of producing electricity in the absence of fuel. This paragraph merely teaches that vanadium carbide is not poisoned or deactivated when it comes into contact with carbon. But it is silent about a device that operates in the absence of carbon, or any other fuel source.

Accordingly, it is believed that independent claims 129 and 138, as amended, are patentable over the combination of Koch and Horita, and it is respectfully requested that the rejection of these claims be withdrawn. The other claims each depend, directly or indirectly, from claims 129 and 138, and are allowable for at least the same reasons. Thus, withdrawal of the rejection of these claims is also respectfully requested.

Moreover, it is not conceded that it would be obvious or predictable to insert the teachings of Horita into the teachings of Koch. While both Koch and Horita are directed to fuel cells, they are not directed to the same type of fuel cell. Koch appears to use a liquid Sn/SnO₂ electrolyte (see, e.g., p. 5, paragraph 1), while Horita uses a solid yttria-stabilized zirconia electrolyte and a solid vanadium or tungsten anode (see, e.g., p. 8, paragraph 3), and the Patent Office has not provided any reason or explanation of why one of ordinary skill in the art would find it obvious or predictable to replace the liquid Sn/SnO₂ electrolyte of Koch with the solid yttria-stabilized zirconia electrolyte of Horita with a reasonable expectation of success, as the electrochemical reactions used to react a fuel, the electrolytic material, and the anodes of both systems are different. The Patent Office has not pointed to a teaching or suggestion that indicates that the Na₂CO₃/Li₂CO₃/SnO₂ electrolytic reaction of Koch (see p. 5, paragraph 1) could be substituted with the vanadium reaction of Horita (see reactions VII and VIII on p. 12) with a reasonable expectation of success. In particular, nowhere is it suggested that such reactions are interchangeable, or produce the same voltages, etc.

To the extent that someone would be motivated to attempt to combine Koch and Horita, it should be noted that the *electrolyte* of Koch is liquid Sn/SnO₂, so that mere substitution of the *electrolyte* of Koch with the *electrolyte* of Horita would result in a device that does not contain any liquid tin. Accordingly, such a device would be nonfunctional, and even if functional, would not result in the present invention as claimed.

Accordingly, it is not seen how the teachings of Horita could be combined with teachings of Koch in order to form a working device. It is believed that the combination of Koch and Horita is improper, for at least the reasons discussed above, and it is respectfully requested that the rejection of these claims be withdrawn.

Rejections under 35 U.S.C. §103(a) in view of Koch, Badwal, and Breault

Claims 52, 133, 134, 142, and 143 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Koch in view of Badwal, *et al.*, U.S. Patent No. 5,942,349 ("Badwal") and further in view of Breault, *et al.*, U.S. Patent No. 4,824,739 ("Breault").

Claims 52, 133, 134, 142, and 143 each depend, either directly or indirectly, from claims 129 and 138. For at least the reasons explained above with respect to the rejection in view of Koch and Horita, the premise of the rejection of claims 129 and 138 (that the combination of Koch and Horita teach all of the limitations of claims 129 and 138) is believed to be incorrect. Accordingly, while Applicants do not concede that there would have been any suggestion or motivation to combine Koch, Horita, Badwal, and Breaultin the manner suggested in the Office Action, the present rejection cannot stand. Thus, withdrawal of the rejection of claims 52, 133, 134, 142, and 143 is respectfully requested.

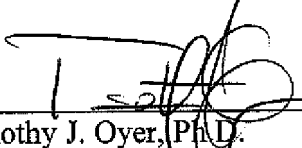
CONCLUSION

In view of the foregoing, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this response, that the application is not in condition for allowance, the Examiner is requested to call the undersigned at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, any necessary extension of time is hereby requested. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825, under Docket No. T0457.70019US00.

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Respectfully submitted,

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